

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON

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NEW MELIACEAE FROM MEXICO.

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While engaged in the preparation of a brief synopsis of the Meliaceae of Mexico for Mr. Paul C. Standley's "Trees and Shrubs of Mexico," I have found several new species of the genus *Guarea*. A new species of *Cedrela* has also turned up since the publication of my paper on this genus.<sup>1</sup> As the plan of Mr. Standley's work does not permit of full descriptions, these are given here.

*Cedrela ciliolata* Blake, sp. nov.

Branchlets puberulous; leaves 6- to 10-foliolate; petiole and rachis pilosulous, together 10 to 25 cm. long; petiolules 1 to 1.7 cm. long, opposite or subopposite; blades ovate or oblong-ovate, or the lowest suborbicular-ovate, the larger 9 to 12.5 cm. long, 3.3 to 5 cm. wide, narrowly falcate-attenuate, at base unequal and usually broadly rounded or subcordate, or rarely acute, pergamentaceous, above deep green, somewhat shining, sparsely puberulous along costa or glabrous, ciliolate with whitish hairs, beneath slightly paler or brownish green, spreading-pilosulous or puberulous chiefly along costa and the 12 to 16 pairs of lateral veins or glabrescent, somewhat prominulous-reticulate; panicles puberulous, when young dense, at maturity loose, about 14 cm. long and wide, with spreading or deflexed branches; pedicels 2 to 3 mm. long; calyx 2 mm. long, puberulous, the 5 teeth short, deltoid, acutish to obtuse, sometimes apiculate; petals linear-oblong, 6.5 to 7.5 mm. long, obtuse, densely griseous-puberulous outside; stamens 3.8 mm. long, glabrous, the anthers 1.5 mm. long, apiculate; pistil 4 mm. long, distinctly exceeding the disk (this 2.5 mm. long), the style exceeding the ovary; capsule (? obovoid-) ellipsoid, 4 to 4.5 cm. long, fuscous; seeds chestnut, 2.4 cm. long or more.

Type in the U. S. National Herbarium, No. 1,001,194, collected at Rincón, near Morelia, Michoacan, altitude 1900 meters, June 20, 1909, by G. Arsène (No. 2728). Duplicates from the same locality and collector in 1909 (No. 3075) and 1911 (No. 5390).

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<sup>1</sup>Proc. Biol. Soc. Wash. 33: 107-111. 1920.

This species is close to *Cedrela dugesii* S. Wats., of Guanajuato, which agrees in its conspicuously ciliolate leaflets, but has much smaller fruit, only 2.5 cm. long, and leaflets very acute at base. The vernacular name of *C. ciliolata* is given by the collector, with a mark of interrogation, as "nogal corriente."

***Guarea chiapensis* Blake, sp. nov.**

Branchlets strigillose; leaves 4- or 6-foliolate, the petiole (12 to 22 mm. long) and rachis (2.5 to 12 cm. long) strigillose; petiolules stout, 2 to 4 mm. long; blades opposite, obovate to elliptic or obovate-elliptic, the larger 10 to 16.5 cm. long, 4 to 6 cm. wide, obtusely short-pointed, at base cuneate, papery, above deep green, finely puberulous along costa and lateral veins, beneath strigillose along costa and chief veins, the lateral veins 8 to 10 pairs, flat or impressed above, prominent beneath, the secondaries prominulous-reticulate chiefly beneath; panicles axillary, 5 cm. long, strigillose, bifurcate from base, the lower branches about 1 cm. long, about 5-flowered, the upper very short or suppressed, about 3-flowered; bracts and bractlets very small; pedicels clavate, about 3 mm. long; calyx saucer-shaped, 1 mm. high, strigillose, shallowly 4-toothed, the teeth deltoid, acutish; petals 4, oblong, 5.8 mm. long, valvate, obtuse, densely griseous-strigillose outside; stamens 8, the tube 4 mm. long, strigillose outside, shallowly 8-crenate, the linear-oblong anthers 1.3 mm. long; pistil 4.8 mm. long, the gynophore glabrous, very short, the ovary densely strigose, 1.8 mm. long, 4-celled, the ovules solitary, the style sparsely strigose, 2.2 mm. long, the stigma 0.8 mm. wide.

Type in the U. S. National Herbarium, No. 567,587, collected at Finca Irlanda, Chiapas, June, 1914, by C. A. Purpus (No. 7374).

This species is related to *Guarea donnell-smithii* C. DC., which is described as having a simple racemiform panicle equaling the leaf rachis.

***Guarea excelsa dubia* Blake, subsp. nov.**

Similar to the typical form in every character, except that the ovary is sparsely strigose above, and the capsule sparsely strigillose.

Type in the U. S. National Herbarium, No. 345,974, collected on Maria Madre Island, Tres Marias Islands, Tepic, May 3-25, 1897, by E. W. Nelson (No. 4230). Also collected at the same place and time by Nelson (No. 4222 in part) and F. S. Maltby (No. 43 in part).

Both Nelson 4222 and Maltby 43 are mixtures of the true *Guarea excelsa* H. B. K. and *G. excelsa dubia*. I can discover no difference whatever between them except in the presence or absence of pubescence on the ovary and capsule, but as this is a technical character of considerable importance in the genus it seems advisable to distinguish the pubescent form as a subspecies. Field studies on the constancy of this character are greatly to be desired. I have seen no specimens of *G. excelsa* showing a pubescent ovary from any other point in its range.

***Guarea heterophylla* Blake, sp. nov.**

Branchlets stout, glabrate; leaves 2- to 10-foliolate; petiole (2 cm. long) and rachis (2.5 to 10.5 cm. long) strigillose, glabrate; petiolules 2 to 4 mm.,

long, glabrate; blades opposite, obovate-oblong or elliptic-obovate, the lower about 6 cm. long, the upper 9 to 13 cm. long, 3.5 to 5 cm. wide, obscurely and obtusely short-pointed, at base cuneate and unequal, pergamentaceous, above glabrous, beneath barbate in the axils, along costa sparsely strigillose or glabrous, the lateral veins about 8 pairs, prominent beneath, the secondaries prominulous-reticulate on both sides; panicles axillary, 7.5 to 14.5 cm. long, strigillose, glabrescent, the branches remote, the lowest spreading, up to 2.5 cm. long, the upper very short, the cymules about 3-flowered; pedicels 1.5 mm. long; calyx saucer-shaped, 1 mm. long, 4-denticulate, strigillose; petals 4, strigillose above, 4 mm. long; stamens 8, the tube 3 mm. long, sparsely strigillose near middle, crenate with emarginate lobes, the anthers oblong, 1 mm. long, exserted for half their length; pistil glabrous, the ovary 4-celled, the cells 1-ovulate, the style about 0.8 mm. long, shorter than ovary.

Type in the U. S. National Herbarium, No. 573,203, collected at Pinotepa, Oaxaca, May, 1845, by H. Galeotti (No. 7247 D).

Related to *Guarea polyantha* Blake, which has much longer and comparatively narrower lance-elliptic acuminate leaflets.

***Guarea polyantha* Blake, sp. nov.**

Large compact shrub; branchlets strigillose, glabrescent; leaves 4- to 10-foliolate; uppermost leaves with about 5 oblong-elliptic obtuse alternate leaflets about 8.5 cm. long; main leaves 10-foliolate, the petioles (3 cm. long) and rachis (23 cm. long) essentially glabrous; petiolules 3 to 6 mm. long; lowest pair of leaflets oblong-elliptic, 7 cm. long, the others elliptic or lance-elliptic, 12.5 to 19 cm. long, 4 to 5.5 cm. wide, obtusely acuminate, at base unequally cuneate, pergamentaceous, equally green on both sides, glabrous on both sides except for ferruginous tufts in the axils beneath, the lateral veins about 8 pairs, prominent beneath, the secondaries prominulous-reticulate on both sides; panicles axillary, 10 to 24 cm. long, strigillose, glabrescent, pyramidal, branched from near the base, the branches 9 cm. long or less, spreading or ascending, their branchlets frequently subverticillate, the cymules mostly 3-flowered; pedicels clavellate, 2 to 4 mm. long; calyx saucer-shaped, 0.8 mm. long, strigillose and ciliolate, the 4 short teeth acutish; petals 4, white, oblong, 3.8 mm. long, obtuse, sparsely strigillose toward apex; stamens 8, the tube 3 mm. long, glabrous, shallowly crenate with emarginate lobes, the anthers oblong, 0.7 mm. long, exserted for half their length; pistil glabrous, 3.2 mm. long, the stout gynophore 0.8 mm. long, the ovary 1.2 mm. long, 4-celled, the cells 1-ovulate, the style 1 mm. long, the stigma 0.8 mm. wide.

Type in the U. S. National Herbarium, No. 266,358, collected in thick, shady woods on low ground in Acapulco or vicinity, Guerrero, March 1-10, 1895, by E. Palmer (No. 578).

According to the collector the flowers have a strong odor of honey, and the vernacular name is "cedrillo."